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A Socioecological Approach to Understanding Bipolar Disorder Psychopathology

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Abstract

Extensive studies regarding the biology of bipolar disorder psychopathology date back to the turn of the 20th century, when Emil Kraepelin proposed his famous psychiatric nosology. Emerging evidence has revealed that bipolar disorder psychopathology is also influenced heavily by complex bidirectional interactions between individual, interpersonal, environmental, societal, and historical factors. This review utilizes Bronfenbrenner's ecological systems theory and Process-Person-Context-Time model to systematically explore these interactions and their impact on the etiology, expression, and treatment of bipolar disorder psychopathology. Conceptual, theoretical, and empirical research is presented to support this framework. Implications for mental health professionals and future research are also discussed.

Keywords: Bipolar disorders; Psychopathology; Ecological systems theory; Process-Person-Context-Time model; Bipolar spectrum

Introduction

Bipolar disorders are a diagnostic category characterized by episodic mood swings of varying severity [1]. Episodes manifest themselves through symptoms of mania (e.g., flight of ideas, increased goal-directed behavior, decreased need for sleep, impulsivity), hypomania (e.g., symptoms of mania that are less intense), or depression (e.g., feelings of worthlessness, suicidal ideation, psychomotor agitation, anhedonia). Episodes are recurrent, vary in duration, and can include features such as anxious distress or a mixed state in which manic and depressive symptoms coincide. Age of onset for bipolar disorders range across the lifespan, with the majority of cases emerging in early adulthood. Early age of onset, manic episodes, and episodes with mixed features in particular have been found to be strong predictors of comorbidity, suicide risk, and hospitalization [2-5]. It is estimated that patients with bipolar disorders are 15 times more likely than the general population to attempt suicide, and as many as 30% of all cases exhibit severe impairment at school, work, and/or social environments. Even in between episodes, patients with bipolar disorders exhibit symptoms that lower overall functioning [6-8].

Heredity's role as a cause of bipolar disorders, and the benefits of medication in treating them, has long been established. While much remains to be discovered in these areas, research in recent years has also explored psychological, social, and environmental processes involved in the etiology, symptom expression, treatment adherence, and prognosis of bipolar disorders. These relationships have often been found to be bidirectional and dependent on the interaction of factors such as genetics, gender, stressful life events, personality, interpersonal relationships, education, exercise, sleep, and diet [9-21]. Overall, it is clear that bipolar disorders are complex and variable in terms of both genotype and phenotype expression. What is less clear is how all of the above might intertwine to form a cohesive and actionable understanding of bipolar disorders.

This article utilizes Urie Bronfenbrenner's ecological systems theory, also known as the bioecological model of human development, to create an evidence-based map which outlines the various biological, psychological, social, and environmental factors that can affect those with bipolar disorders across the lifespan. The goal is to present conceptual, theoretical, and empirical literature related to bipolar disorders and explain the variability in individual cases according to the multiple levels of Bronfenbrenner's ecological systems theory. His Process-Person-Context-Time (PPCT) model, which plays a role in each level of the ecological systems theory, will also shape the following framework [22]. A discussion of future research and implications for mental health professionals who diagnose and treat bipolar disorders will follow.

Characteristics of the Ecological Systems Theory and the PPCT Model

The ecological systems theory and, by extension, the PPCT model propose that unique, bidirectional interactions between the individual, their immediate environment, society as a whole, and historical events continually impact a person's behavior, psychology, and pathology throughout the lifespan [23-25]. In other words, human development is defined as both an individual and a group process that influences successive generations. These theories are extensively rooted in psychology's understanding of human development based on a wealth of theoretical discussions regarding development itself, rigorous research methodologies that should be used to measure related constructs, and the resulting waves of empirical support.

Ecological systems theory

The ecological systems theory consists of five levels that are nested within each other and interact bidirectionally to influence each other: the microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem. The microsystem comprises an individual, their immediate surroundings, and other environments that they directly participate in (e.g., at home, school, and/or work). Human development is largely dependent on reciprocal exchanges between family members and peers in such environments. Here, an individual adopts different roles depending on who and what they are face-to-face with, and these identities mold an individual over time as intimate bonds are formed with others, who in turn work to introduce more complex stimuli and further nurture the individual's cognitive, physical, social, moral, and emotional development. The mesosystem comprises the interactions between two or more microsystems. For example, a child's struggles at home may have a negative impact on their academic performance because they are distracted, tired, and unmotivated. Support from teachers and school counselors, however,

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can have a buffering effect and increase resilience in the face of such struggles. Next, the exosystem consists of two or more environments that an individual does not actively participate in but which nonetheless impacts them in some way. Perhaps the aforementioned child's struggles at home stem from a parent who is distressed at the state of their workplace and projects their anger onto the entire family. Other environments can include formal and informal entities such as one's neighborhood, government agencies, transportation systems, and media outlets. The macrosystem goes one step further, encompassing beliefs and values held by society at large and the culture(s) an individual identifies with, typically reflected in education, politics, healthcare, the economy, and the law. Finally, the chronosystem reflects factors in an individual's life that are the result of changes in the macrosystem over time.

The PPCT model

The PPCT model explores four essential properties that influence each level outlined by the ecological systems theory: proximal processes, person, context, and time. Bronfenbrenner et al. refer to proximal processes, or the long-term interactions between an individual and an environment, as the "core" of these models. Proximal processes shape genotype expression and lead to the actualization of one's potential to perceive themselves and the world, exert self-control, tolerate stress in a healthy manner, learn effectively, form and maintain strong relationships, and actively participate in their environments. Proximal processes are highly variable across individuals but can include parental bonds, playing by oneself or with friends, learning new skills, athletic activities, and taking care of someone else. The success of proximal processes is dependent on stable mesosystems, or else the developing individual will be unable to progress toward more complex interactions, then stagnate and perhaps experience pathology-especially in the presence of abuse or neglect. According to the PPCT model, person characteristics greatly influence proximal processes. One's disposition (e.g., temperament), bioecological resources (e.g., intelligence), and demand characteristics (e.g., age) guide development either disruptively, through apathy and distractibility, or generatively, through curiosity and attentiveness. Context refers to objective facts, emotional experiences, personal beliefs, and motivational factors that develop as a direct result of one's environment. Time refers to the engagement an individual experiences during an activity, long-term activities and relationships, and societal and cultural changes that occur prior to or during one's lifetime.

Applying Bronfenbrenner to Bipolar Disorders

Bronfenbrenner's ecological systems theory and PPCT model are particularly relevant for understanding the complexity of bipolar disorder etiology, symptom expression, treatment adherence, and prognosis. The following sections will utilize these frameworks to create an ecological map of the variability of bipolar disorders among individuals based on existing conceptual, theoretical, and empirical literature.

Microsystem

The microsystem is influenced by individual factors and proximal processes. Individual factors are rooted in biological and cognitive elements such as genetics, personality, temperament, and psycho-physiological stress responses. For bipolar disorders, the genetic risk burdens predicted by polygenic scores may influence the development of Bipolar Disorder type I (BD-I) or type II (BD-II), as well as the direction and strength of episodes [26]. Patients with BD-I tend to have a higher genetic risk burden associated with schizophrenia and thus are more likely to experience severe manic episodes characterized by inattention and reckless behavior. In contrast, patients with BD-II tend to have a higher genetic risk burden associated with major depressive disorder, even when family members are diagnosed with BD-I. These patients are more likely to experience severe depressive episodes characterized by low functioning. Early age of onset, commonly seen in females, is similarly associated with severe manic and depressive symptoms alongside increased anxiety, hospitalizations, and comorbid psychiatric and elimination diagnoses. As another example, youth diagnosed with bipolar disorders are more likely to have lower hippocampal volume. Thus, they are more likely to possess an inhibited temperament and experience negative affect, difficulties with adapting to new situations, and disrupted social rhythm. In terms of personality, people diagnosed with bipolar disorders at a young age tend to exhibit higher levels of neuroticism and lower levels of agreeableness, extraversion, and conscientiousness. This personality type can lead to increased episode frequency, particularly in the presence of an anxiety disorder and a history of childhood abuse.

Childhood abuse is a prime example of a proximal process which can occur in an individual's environment and contribute to psychopathology. Proximal processes have the potential to support normal development as well, but this is rare when unstable, neglectful, and/or harmful stimuli appear long-term. For example, parents diagnosed with bipolar disorder are less likely to foster for their children a sense of structure, independence, and achievement, nor are they likely to establish role boundaries or handle misbehavior effectively [27]. Instead, these families are often characterized by conflict and excessive control. This type of environment is predictive of psychopathology in offspring, particularly once they reach middle childhood. For example, a combination of neurotic, agreeable, and/or extroverted personality traits in parents with bipolar disorders significantly predict internalizing and externalizing problems in offspring that, in turn, negatively influence sexual behavior and interpersonal relationships [28]. Offspring are also more likely to utilize mental health services, be incarcerated, and drop out of high school. Parents who understand the heritability of bipolar disorders and related risks tend to want to take preventative action for their children, use active coping skills, and seek social support. Proximal processes function bidirectionally. As such, patients with bipolar disorders affect their immediate environments in a way that shapes symptoms and prognosis. Parents with bipolar disorders experience more severe symptoms if their child is also diagnosed, for example. Parenting stress increases depending on the severity of their child's symptoms and if their child has an above average IQ. A child's need for extra stimulation and pressure for high-achievement, coupled with parenting stress and psychiatric illness, makes it especially difficult for parents to provide the reciprocal and increasingly complex interactions required for normal development. Further, real-time mobile monitoring studies have shown that people with bipolar disorders are affected greatly by their exercise, diet, and sleep. Exercising less than three times a week is common among this population. Poor eating habits, such as eating one meal a day, are also common. A low intake of calories, carbohydrates, and healthy fats in particular are associated with high blood pressure, glucose levels, and BMI. Further, actigraphy studies have shown that patients with bipolar disorders wake more often during the night and struggle to fall asleep, which is highly correlated with negative affect. Decreased exercise and sleep deprivation are common triggers of depressive episodes, while diet

changes-especially high consumptions of sugar, caffeine, alcohol, and energy drinks-are common triggers of (hypo)manic episodes.

Meso-exosystem

Mesosystem and exosystem factors are closely related in that two or more microsystems form them. The exosystem comprises environments that indirectly affect a person, however, while the mesosystem directly affects them. Interpersonal relationships are the most notable meso-exosystem factor for patients with bipolar disorders, who struggle with social rhythm, a theory that emphasizes the importance of daily routine and social contact in maintaining stable circadian rhythms and, thus, preventing affective episodes. These relationships directly and indirectly traverse through settings such as school, work, camp, church, social media, local neighborhoods, and nearby communities. If social support is present, it can act as a buffer against psychopathology development in the face of exosystem factors such as legal issues in the family, parental divorce, and parental death, as well as microsystem factors such as childhood abuse and neglect. Without social rhythm across environments, patients with bipolar disorders experience an increase in episode frequency and duration [29]. Poor familial relationships especially seem to predict episodes.

Occasionally, however, interpersonal relationships are a source of further stress for patients with bipolar disorders. A significant number of parents with bipolar disorders have reported partners as being verbally abusive, particularly if the partner is diagnosed with a personality disorder. Frequent concerns expressed by partners of patients with bipolar disorders are the unpredictability of bipolar episodes, poor treatment adherence, feelings of helplessness and hopelessness, feeling unappreciated, taking care of children and the home alone, sleep deprivation, and not having the time for hobbies or friendships. Both partners often feel increased empathy and compassion for one another, however, and average relationship satisfaction is not uncommon. Less ambivalence appears to depend on how willing a partner with bipolar disorder is to contribute to home life when they are capable of doing so, as well as relapse prevention efforts.

A further source of distress in interpersonal relationships for patients with bipolar disorders is low metacognition and theory of mind, that is, the ability to be aware of oneself and others. Specifically, patients with bipolar disorders struggle to feel empathy, maintain attention, and understand social cues across environments [30]. Additionally, Popolo et al. found that considering multiple perspectives is an arduous task for this population, and psychosocial problems are typically solved by adjusting behavior but not thinking patterns. The authors also found that low metacognitive abilities are associated with social withdrawal, perhaps in an effort to avoid interpersonal difficulties and control the stability of thoughts [31]. When patients with bipolar disorders engage socially, certain scenarios are likely to trigger manic episodes, including falling in love, recreational stimulant use, partying, vacationing, and exposure to loud music. Social media is a common environment through which these patients socialize, especially to seek mental health resources and support, although concerns about stigma, hostile confrontations, and threats to employment are pervasive [32]. Neurocognitive difficulties across environments include poor flexibility, organization, planning, and verbal memory and learning [33].

Macrosystem

For patients with bipolar disorders, the macrosystem is largely shaped by treatment prospects, as well as societal and cultural norms regarding stigma. Multiple barriers contribute to mental health treatment accessibility and quality. For instance, bipolar disorders are often misdiagnosed as major depressive disorder, borderline personality disorder, and ADHD [34,35]. African Americans and Hispanics are more likely to be diagnosed with schizophrenia instead [36]. Some causes of misdiagnosis appear to be systemic. Clinicians, for example, are often hesitant to refer patients to mental health services because communication between separate providers tends to be poor [37]. Insurance coverage, financial strain, and commitment to travel are typical reasons that patients themselves are uncertain about referrals. Additionally, primary care providers may inadvertently overlook bipolar disorders due to a lack of knowledge about them, not knowing proper screening and workflow procedures, or focusing on other urgent and/or chronic illnesses. Bipolar disorders may be intentionally discounted as well if providers believe that they are overdiagnosed. Further, depressive episodes are typically seen at onset, and thus, clinicians are likely to suspect unipolar depression instead [38]. This is especially likely if patients do not report (hypo)manic symptoms, the hallmark of bipolar disorders, because they are enjoyable and not reminiscent of illness.

Even when bipolar disorders are diagnosed accurately, other barriers to treatment remain. Patients with bipolar disorders struggle to accept a stigmatized diagnosis and the implication that they will be ill for life [39]. It is helpful when clinicians educate patients, provide intensive care, and follow up on treatment, but this process is inconsistent in practice. Additionally, sharing knowledge about bipolar disorders is less effective than forming relationships with peer support specialists, as they tend to be more empathic and serve as role models on the road to recovery [40]. Regardless, understanding bipolar disorders is essential for reducing internalized and anticipated stigma, which the majority of patients experience across environments [41]. It is also essential for treatment adherence, a pervasive issue within this population. Many patients on medication reportedly experiment with prescribed doses. Reasons for this include physical side effects, fear of addiction, fear of toxicity, believing that medication is not needed when one is feeling well, and the emotional toll resulting from a dulled sense of self. Prior suicide attempts, telephone follow ups, homelessness, and life commitment barriers are also predictive of low treatment adherence, with high treatment adherence being more common in patients with intense medication regimens [42]. High treatment adherence is also seen in patients who trust their doctors and believe that medication is helpful during and in between episodes.

Chronosystem

Bipolar disorders can be understood through the chronosystem when considering their complex history and persistent nature. In the mid-19th century, a widespread belief in unitary psychosis allowed health practitioners to institutionalize patients with severe symptoms indefinitely because treatment was presumably impossible [43]. Once Emil Kraepelin proposed a dichotomy between manic-depressive insanity and dementia praecox at the turn of the 20th century, psychosis became another symptom and not a life sentence. Bipolar disorders have continued to undergo broad changes in classification, as reflected in each edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM). Most notably, the DSM-III, adopted in 1980, split the manic-depressive insanity diagnosis into bipolar

disorder and major depressive disorder, thereby claiming that the presence or absence of mania defines a diagnosis and not episode recurrence [44]. The DSM-IV, adopted in 1994, reintroduced Kraepelinian criteria such as BD-II's hypomania and cyclothymia's infrequent mood swings of low severity. In recent years, there has been an increasing number of arguments and evidence supporting the Kraepelinian notion that bipolar disorders belong on a spectrum [45,46]. A patient's placement on the spectrum during an episode would depend on the interactions between subsystem factors described above, and pathology is often present even in between episodes. Regardless, the introduction of the DSM-5 in 2013 failed to implement evidence-based proposals supporting a bipolar spectrum. Instead, BD-II is no longer deemed a mild diagnosis compared to BD-I. This change simultaneously emphasizes the dichotomy between bipolar disorders and major depressive disorder while attempting to remove the stigmatized barriers to treatment for patients with BD-II caused by the very existence of a strict dichotomy.

If eventually placed on a spectrum, the main concern is that bipolar disorders will be overdiagnosed. Indeed, Kraepelin believed his own nosology to be overinclusive, and he was unable to rectify the issue before his death in 1926. Based on evidence, however, misdiagnosis is the more rampant concern, and less narrow diagnostic criteria may offer clarity on a complex diagnostic category that, perhaps because of reductionism, has led to much confusion and debate. The history and future of bipolar disorders have and will continue to affect patients' diagnosis, treatment options, treatment adherence, and overall understanding of what specific symptoms and mood cycles signify.

Implications for Mental Health Professionals and Future Research

Across all subsystems of the ecological systems theory, person characteristics influence the strength and direction of proximal processes, which in turn shape person characteristics and developmental outcomes that either endure or change further across context and time. The etiology of bipolar disorders result from, and their expression is infinitely shaped by, these bidirectional environments and relationships-especially if they are unstable and incapable of providing cognitive, moral, social, physical, and behavioral nourishment. To properly recognize the needs and challenges of patients with bipolar disorders, these variable factors must be taken into consideration on a case-by-case basis. Mental health professionals and researchers would benefit from utilizing the ecological map presented in this review to inform and guide their work.

At the microsystem level, for example, fostering the wellbeing of these patients means identifying risk factors such as early age of onset and working immediately to build a bond between the patient, their family, and the healthcare system. Family members are particularly useful for identifying pleasurable (hypo)manic symptoms that would otherwise go unreported by older patients. Also at the microsystem level, patients with bipolar disorders should be offered empathy and adequate knowledge of their illness simultaneously, to increase chances of treatment adherence and to nurture resilience factors. At the micro- and meso-exosystem levels, genetic counseling and other forms of therapy would emphasize the importance of such risk factors and encourage family members to undergo treatment for their own mental health concerns. Health providers are encouraged to notice nuances in the social rhythm of patients and take preventative measures. At the macrosystem level, communication between different types of mental health providers is essential to ensure that patients exhibiting symptoms of all severity are treated, whether they are in the throes of an episode or not. Consistent follow up may reduce the likelihood of short gaps between episodes and relapse in general, as well as serious issues associated with severe episodes such as suicide and hospitalization. Misdiagnoses and subsyndromal symptoms that linger in between episodes may also be more readily identified based on information retrieved at follow up. Additionally, understanding individual patients would be helpful in discerning who might respond best to mood stabilizers, antidepressants, antipsychotics, and other commonly used pharmacotherapy options. Addressing stigma at the macrosystem level is also necessary to ensure healthy and compassionate relationships at the micro- and meso-exosystem levels. At the chronosystem level, future research should continue to explore bipolar spectrum concepts and, if appropriate, implement new diagnostic criteria, healthcare training programs, and treatment interventions that adequately encompass the diversity of this population. Based on current criteria and knowledge of bipolar disorders, mental health professionals should recognize that the symptoms of a depressive episode and major depressive disorder are identical. Both diagnoses should thus be equally considered. Overall, mental health professionals and researchers should be aware of their vast and important role not only in treating bipolar disorders, but also shaping them.

Conclusion

This review, to the author's knowledge, is the first to apply Bronfenbrenner's ecological systems theory and PPCT model to the understanding of bipolar disorder psychopathology. These frameworks help shape an ecological map of bipolar disorder etiology, expression, and treatment outcomes, which was outlined in this review using conceptual, theoretical, and empirical research. Overall, this review suggests a need to reconsider the strategies used to address patients with bipolar disorders from both a holistic and person-centered perspective. It is the hope of the author that this review may aid mental health professionals and researchers in exploring this complex diagnostic category and how patients' lives are shaped by a countless number of factors.

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